

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**EXPANSE NETWORKS, INC.,**

**PLAINTIFF,**

**vs.**

**CATALINA MARKETING CORP.,**

**DEFENDANT.**

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**C.A. NO. 02-CV-2857**

**DEFENDANT'S REPLY IN SUPPORT OF ITS CLAIM  
CONSTRUCTION POSITIONS**

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## **I. INTRODUCTION**

Expanse seems to suggest that, in 1998, Dr. Eldering invented the concept of developing demographic profiles from purchase history data. The prior art before this Court clearly demonstrates that developing demographic profiles from purchase history data was known long before 1998. At most, Dr. Eldering invented a particular mathematical formula to effectuate known profiling techniques.

Likewise, Expanse seems to suggest that Dr. Eldering invented the concept of comparing two or more ads to deliver the most relevant targeted ad to a consumer in 1998. The prior art clearly reflects that such a concept was known well prior to 1998. At most, Dr. Eldering invented a particular mathematical formula to effectuate known targeted marketing techniques.

This Court is charged with reasonably construing the patents-in-suit in such a way as to preserve their validity. Expanse's broad construction, which focuses on individual terms without reference to their context as part of a coherent whole, effectively defines Dr. Eldering's alleged mathematical innovations out of the claims. By contrast, Catalina's construction clearly captures the gist of Dr. Eldering's inventions and is consistent with appropriate definitions of individual terms while recognizing those terms work together as part of a coherent whole. Further, Catalina's construction is the only construction consistent with the parties' stipulation that the term "calculating" means to perform a mathematical operation, and Dr. Eldering's lexicographic definition in the prosecution history of "probabilistic measure" as a specific numeric representation of probability.

Catalina believes that there are six major claim construction disputes, including the meanings of (i) computer-implemented method; (ii) advertisement; (iii) correlation factor/scalar product; (iv) defining a probabilistic measure; (v) associated with; and (vi) profile/set of heuristic rules/demographic characteristics. This Reply will address five of those major disputes.<sup>1</sup>

Interestingly, Expanse asserts that many of the terms construed by Catalina in its *Markman* brief do not require construction by the Court. Yet Expanse provides a responsive construction that is contrary to that argued by Catalina. Obviously, there is a dispute as to the relevant meanings of these terms, which needs to be resolved by the Court in its claim construction.<sup>2</sup>

## II. CONSTRUCTION OF THE CLAIM TERMS AT ISSUE

### A. ADVERTISEMENT

Apparently conceding that the ordinary and customary meaning of the term “advertisement” would not encompass consumer sales promotions such as coupons, Expanse argues that the patentee in this case acted as his own lexicographer and

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<sup>1</sup> Catalina will not address computer-implemented method, as that issue has already been extensively addressed in both parties’ opening and response briefs. Catalina also notes that Expanse has not challenged Catalina’s construction of “discretionary characteristics of an intended target market,” “set,” or “product characterization information associated with products included in the detailed purchase records,” and respectfully requests that this Court adopt those constructions.

<sup>2</sup> Catalina was forced to address numerous terms in its *Markman* brief because Expanse refused to inform Catalina of its construction of those terms by stating that it was merely relying on the “ordinary meaning.” As illustrated in the claim construction briefing, to the extent a general purpose dictionary is used as the source of “ordinary meaning,” it almost invariably offers several possible meanings, the distinctions between which can mean the difference between infringement/non-infringement and validity/invalidity. However, Expanse refused to inform Catalina as to which particular meaning it was relying on, which made it difficult to determine the exact scope of the claim construction dispute. Therefore, Catalina was forced to assert constructions of many terms in the '129 and '348 patents in its *Markman* brief. In any event, it is apparent that there is a dispute as to the meanings of each of the terms contained in that brief.

explicitly defined the term “advertisement” in the ‘129 patent’s specification and/or prosecution history to include coupons. (Expanse Resp. Br. at 4). However, on the same page of its brief, Expanse contradicts that argument by conceding that “[t]he ‘129 patent’s specification is silent as to any definition of the term advertising.” *Id.* Moreover, Expanse bases its “lexicographer” argument on a passage in the ‘129 specification that makes clear the distinction between advertisements and coupons.

Expanse asserts that “[t]he ‘129 patent specification does, in fact, specifically refer to coupons as within the scope of an advertisement.” *Id.* Nothing could be further from the truth. The passage upon which Expanse relies is found in Column 7 of the ‘129 specification and reads as follows:

When the consumer 100 is also the profiler 140, as shown in FIG. 1B, access to the consumer demographic and product preference characterization is controlled exclusively by consumer 100, who will grant access to the profile in return for receiving an increased accuracy of ads, for cash compensation, or in return for discounts or coupons on goods and services.

‘129 patent (Ex. 1), col. 7. lns. 15-21 (emphasis added). Expanse tortuously argues that, because the terms “advertisement” and “coupon” both were recited in the specification, the term “advertisement” in the patent claims clearly was intended to encompass both advertisements and coupons. (Expanse Resp. Br. at 5). Contrary to Expanse’s argument, a patent specification can be, and in fact almost always is, broader than an individual patent claim. Arguably, the ‘129 patent specification could have supported claims directed to the selection of coupons, but the actual claims of the ‘129 patent are directed only to “advertisements.”

There is no support for the proposition that patent claims should be construed to

be as broad as the disclosure in the patent specification. On the contrary, the Federal Circuit has held that, when a patentee attempts to cover an accused product or method under the doctrine of equivalents, the patentee is not entitled to claim coverage for subject matter that is disclosed in the specification, but not specifically claimed. *See PSC Computer Prod., Inc. v. Foxconn Int'l, Inc.*, 355 F. 3d 1353, 1360 (Fed. Cir. 2004). As a matter of public policy, to the extent that the patentee discloses an embodiment, but fails to claim it and therefore prevents scrutiny of that embodiment during the examination process, the patentee dedicates that particular embodiment to the public. *Id.*

Contrary to Expanse's argument, the column 7 passage in the '129 patent specification does not suggest that the patentee intended to include coupons as a form of advertising, but rather demonstrates clearly that the patentee distinguished between advertisements and coupons, and chose to claim only inventions directed to the selection of advertisements.

Expanse also argues that, because the patentee, in the prosecution of the '129 patent, disclosed prior art patents directed to coupons, he understood that coupons were encompassed within the term "advertisements." However, the disclosure of such prior art references does not in any way indicate that the term "advertisements" includes coupons. On the contrary, prior art directed to forms of marketing other than advertising, such as coupons, could have been relevant to the patentability of the inventions claimed in the '129 patent, whether or not coupons were within the scope of the term advertisement as used in the '129 patent claims.

Similarly, Expanse mischaracterizes the Examiner's citation to the Deaton



reference (Ex. 45) as indicating that the Examiner and the patentee understood that the terms “advertisement” and “coupon” were interchangeable. (Expanse Resp. Br. at 5). The Examiner cited the Deaton reference pursuant to 35 U.S.C. § 103, indicating that the presentation of advertisements to a consumer via mail in the ‘129 patent was obvious over the disclosure in Deaton of mailing coupons to selected users. *See File History* (Ex. 2), pp. CATA 001211-17. Section 103 obviousness does not mean that two things are the same but, on the contrary, means only that one thing may have been obvious in view of the other.

In support of its claim construction position, Catalina submitted the expert report of Catalina employee Eric Williams and an expert declaration from Carlene Thissen. The Thissen declaration distinguishes between (1) advertising, for example television commercials, which are public announcements endorsing products, independent of any consumer sales promotions, and (2) direct-to-consumer sales promotional activities, including the dissemination of coupons or other redeemable discount offers that are provided to consumers by consumer packaged goods manufacturers. Thissen Decl., Exhibit 29, ¶ 4.

Expanse attacks Mr. Williams’ and Ms. Thissen’s expert testimony as improper “extrinsic” evidence. However, credible evidence of an industry-specific meaning is not improper extrinsic evidence and cannot be ignored. *See Vanderlande Indus Nederland BV v. Int’l Trade Comm’n*, 366 F. 3d 1311, 1321 (Fed Cir. 2004). Moreover, the distinction drawn by Ms. Thissen between advertising and direct-to-consumer sales promotional activities, including the dissemination of coupons, is completely supported

by industry-specific dictionary definitions which are indisputably not extrinsic evidence. *See Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203 (Fed. Cir. 2002) (“categorizing [non-technical and technical dictionaries] as ‘extrinsic evidence’ or even a ‘special form of extrinsic evidence’ is misplaced and does not inform the analysis”). The American Marketing Association’s Dictionary of Marketing Terms defines the term “advertisement” as follows:

Any announcement or persuasive message placed in the mass media in paid or donated time or space, by an identified individual, company or organization.

*Dictionary of Marketing Terms*, 2d Ed. (Ex. 43) at p. 6 (emphasis supplied). However, the same dictionary defines “consumer sales promotion” as follows:

Externally directed incentives offered to the ultimate consumer. These usually consist of offers such as coupons, premiums, rebates, etc., designed to gain one or more of the following: product trial; repeat usage of product; more frequent or multiple product purchases; introduce new improved product; introduce new packaging or different size packages; neutralize competitive advertising or sales promotions; capitalize on seasonal, geographic, or special events; encourage consumers to trade up to a larger size, more profitable line, or another product in the line.

*Id.* at p. 61 (emphasis supplied).

The use of the term “advertisement” on Catalina’s web site or by Catalina’s counsel is in no way inconsistent with Catalina’s proposed claim construction. See Expanse Resp. Br. at 6-7. That Catalina may offer advertising services as well as consumer sales promotion services does not change the meaning of the term “advertisement” in the ‘129 patent. Similarly, Expanse’s reliance on another court’s construction of the term “coupon” in another patent is irrelevant to the issues before this Court. It is improper to rely on the construction of a term in another suit involving a

different and unrelated patent. *AFG. Indus. Inc. v. Cardinal IG Co., Inc.*, 1999 U.S. App. Lexis 653 at \*3-5 (Fed. Cir. 1999) (holding that it was improper for the district court to interpret the term “layer” in the patent at issue according to the interpretation of the term “layer” in another suit involving a different and unrelated patent).

Moreover, the district court opinion cited by Expanse is irrelevant because (1) it provides a general-purpose dictionary definition of “coupon,” which is contrary to the undisputed evidence of the art-specific meanings of advertisement and coupon in this case; (2) it does not even address the term “advertisement,” which is at issue in the present case; (3) the term “coupon” was not at issue in the district court case and was therefore not even construed by that court; and (4) the district court subsequently vacated the opinion cited by Expanse. *See Home Shopping Network, Inc. v. Coupco, Inc.*, 1998 U.S. Dist. Lexis 23173 (S.D.N.Y. 1998) (vacating *Home Shopping*, 1998 U.S. Dist. Lexis 2111 at \*13-32).

For these reasons, Catalina respectfully requests that the Court construe the term “advertisement” to mean “information and/or images placed in the public media to generally encourage the purchase of a specific product or products or a shopping trip to a specific store or stores (e.g., television ads, radio ads and print media).”

#### **B. CORRELATION FACTOR/SCALAR PRODUCT**

##### **Correlation Factor**

Catalina proffers that “correlation factor” means a numeric value mathematically determined by the computer program which represents the degree of similarity or correspondence between the characteristics in the consumer profile and an advertisement

profile. Expanse argues, without dictionary support, that “correlation factor” is the degree or extent to which something correlates.

Incredibly, Expanse asserts that term “factor” should not be limited to its mathematical definition. Expanse’s Response, p. 10. The actual claim language is “calculating a correlation factor.” Exhibit 1, claim 17. The parties have stipulated that “calculating” means to perform a mathematical operation. See Exhibit 27. Therefore, “correlation factor” is clearly the result of a mathematical operation, making the mathematical definition the only appropriate definition.

The argument that even the mathematical definition does not support Catalina’s construction that a correlation factor is a numeric value is contrary to the definition itself and to the specifications of the '129 and '348 patents. The definition cited by Expanse is: “One of two or more quantities that divides a given quantity without a remainder. For example, 2 and 3 are factors of 6; a and b are factors of ab.” See Expanse’s Response, pp.10-11. The reference to division is indicative of a mathematical function (i.e.  $6 \div 3 = 2$ ). Letters (a, b, x, y, etc.) are frequently used in mathematics and algebra to represent numbers. Therefore, the reference to “ab” in Expanse’s dictionary definition does not change that “correlation factor” is a numeric value. Even if the reference to “ab” was sufficient to broaden the term “factor” beyond numeric values, that definition would be contrary to the use of the term in the '129 and '348 patents. Once again, Expanse has not made any effort to address the references in the patents, cited by Catalina, indicating that “factor” is a numeric value. See Exhibit 1, col.11, lns. 27-35 and claims 4-6.

Expanse does rely on two references in the specification that use the terms “extent” and “degree” with respect to correlation. *See* Expanse’s Response, p.11. Expanse seemingly suggests that factor could include a measure of degree such as high or low. However, such an interpretation is at odds with the definition of the term “factor,” and Expanse cannot escape the meanings of the terms actually used in the claims by reference to other broader terms in the specification. Further, when examined in the context of the entire claim phrase “calculating a correlation factor ... as a scalar product,” it is clear that utilizing the mathematical definition of factor is mandated because “calculating” is stipulated to mean to perform a mathematical operation and “scalar product” is indisputably a number that results from a specific mathematical operation. The fallacy of Expanse’s argument is clearly revealed by the answer to the question of what mathematical operation produces a result denominated “high” or “low” – that answer is none.

#### **Scalar Product**

Catalina proffers that “scalar product” is a two-word mathematical term which means the result of multiplying the corresponding components of two vectors and adding the results.

Similar to its arguments regarding “factor” (in “correlation factor”), Expanse asserts that “scalar product” should not be limited to its mathematical meaning. Once again, this is contrary to the actual claim language “calculating a correlation factor... as a scalar product,” and to the parties’ stipulation that “calculating” means to perform a mathematical operation. *See* Exhibit 1, claim 17; Exhibit 27. Therefore, “scalar product”

is clearly the numeric result of a mathematical operation, making the mathematical definition regarding vector multiplication to arrive at a numeric result the only appropriate definition. Additionally, Expanse has not offered any argument to contradict the numerous references cited by Catalina supporting this ordinary meaning in the art.

In a vain attempt to broaden “scalar product,” Expanse relies on the after-the-fact testimony of its inventor, Dr. Eldering. Expanse’s Response, pp.17-18. Particularly, Expanse relies on a passage of Eldering’s deposition testimony (also cited by Catalina) where he tried to expand on his testimony regarding the mathematical use of “scalar product” to refer vector multiplication. Eldering testified that he believed he intended the definition of “scalar product” to **at least** encompass the dictionary definition, which is the same as the vector multiplication definition he had already provided. Expanse’s Response, p. 18 (emphasis regarding “at least” in Expanse’s Response). This self-serving, after-the-fact testimony regarding what was intended by the use of “scalar product” is not entitled to much credence because it *seeks* to broaden the scope of the patents beyond that supported by the specification and prosecution history, on which the public is entitled to rely in assessing patent scope. *See Bell & Howell Document Management Prod. Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed. Cir. 1997); *Vitrionics Corp. v. Conceptiontronics, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996).<sup>3</sup>

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<sup>3</sup> The Court can rely on Eldering’s dictionary definition of “scalar product” as meaning vector multiplication because that testimony is consistent with the ordinary meaning in the art, the specification, and does not *seek* to broaden the claim scope. *See Voice Tech. Group, Inc. v. VMC Sys., Inc.*, 164 F.3d 605, 615 (Fed. Cir. 1999) (inventor can explain the technology and what was invented and claimed and it is proper to consider such testimony). However, “the subjective intent of the inventor when he used a particular term is of little or no probative weight in determining the scope of a claim.” *Id.* Therefore, Eldering’s testimony that he intended “scalar product” to at least encompass the dictionary definition is not entitled to weight in this Court’s construction.

Moreover, Expanse has not pointed to anything in the specifications of the '129 and '348 patents that indicate that Eldering acted as his own lexicographer to provide an explicit definition of “scalar product” that would broaden the ordinary mathematical meaning. In fact, the Eldering deposition testimony cited by Expanse clearly establishes that no definition of scalar was called out in the patent. The only evidence remotely related to this issue is Eldering’s deposition testimony, pointing to the use of “degree of correlation” as related to “scalar product.” See Expanse’s Response, p.18. As with “factor,” the use of “degree” to describe correlation in the specification does not broaden the claim term “scalar product,” or indicate it is not limited to a number. If Expanse wanted broader claims covering a non-numeric “degree” or “extent” of correlation, it could have submitted claims with those words for prosecution. Having not done so, it cannot now obtain coverage for those disclosed but unclaimed features. See *PSC Computer Prod., Inc. v. Foxconn Int’l, Inc.*, 355 F.3d 1353, 1360 (Fed. Cir. 2004) (a patentee is not entitled to claim coverage under the doctrine of equivalents for subject matter that is disclosed but not specifically claimed, which is analogous to an attempt to obtain such coverage through an overly broad claim construction).

Significantly, Dr. Eldering admitted in his expert deposition that “product” in the context of a mathematical operation means multiplication. Eldering Expert Depo., Ex. 44, at 295:22-296:1. Thus, even looking at “scalar product” as two separate terms (as erroneously suggested by Expanse), the phrase “calculating ... a scalar product” would mean calculating a scalar multiplication and therefore mandates that scalar must be a

number because calculating is stipulated to mean to perform a mathematical operation and it is not possible to multiply non-numeric degrees such as “high” or “low.”

Furthermore, Expanse’s arguments to broaden the scope of “scalar product” to mean something other than a numeric value resulting from vector multiplication is contrary to its Response to Catalina’s Motion for Summary Judgment of Invalidity. In that response, Expanse argued that “[n]o matter which [parties’] definition [of scalar product] the court adopts, the end result is a single number or numerical representative.” Expanse’s Response on Invalidity, p.17. Expanse made this statement as part of its argument that the prior art '257 patent does not teach a “single scalar.” Expanse’s Response on Invalidity, p.18 (“In fact, the individual elements of the '257 patents matrix are scalars, but the matrix is not reduced to a single scalar as set forth in the '129 patent.”) (emphasis added). Expanse cannot argue one construction to avoid invalidity and another in an attempt to capture the accused process. *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1343 (Fed. Cir. 2003) (“It is axiomatic that claims are construed the same way for both invalidity and infringement.”).

Expanse also challenges Catalina’s construction that the advertisement and consumer profiles must have identical discretionary characteristics. It is part and parcel of calculating a scalar product that the components of the vectors (here describing the discretionary characteristics) be paired. Thus, Expanse’s assertion that the requirement that the advertisement and consumer profiles have identical discretionary characteristics in order to calculate the scalar product under Catalina’s construction illustrates both a fundamental misunderstanding of the mathematics of vectors and the teaching of the '129



patent. Catalina acknowledges that its use of “identical” may be confusing if taken literally, as Expanse apparently has. Catalina used “identical” in its June 17<sup>th</sup> construction, but opted to forgo that particular term in its *Markman* Brief while still maintaining the same principal intended by the use of “identical.” Catalina’s *Markman* Brief fully explains the necessity of indexing the characteristics in the advertisement profile with those in the consumer profile, as it is explained in the '129 patent.

As illustrated below, the scalar product involves multiplying corresponding positions in two vectors to arrive at a numeric result:

$$\text{Let } \hat{u} = \begin{bmatrix} u_1 \\ u_2 \\ \vdots \\ u_n \end{bmatrix}, \hat{v} = \begin{bmatrix} v_1 \\ v_2 \\ \vdots \\ v_n \end{bmatrix} \text{ be vectors}$$

- The dot product of  $\hat{u}$  with  $\hat{v}$  is the scalar  $\hat{u} \cdot \hat{v} = u_1 v_1 + \dots + u_n v_n$ . For

$$\text{example, if } \hat{u} = \begin{bmatrix} -2 \\ 1 \\ 4 \\ 0 \end{bmatrix}, \hat{v} = \begin{bmatrix} 5 \\ 2 \\ 0 \\ 3 \end{bmatrix}, \text{ then } \hat{u} \cdot \hat{v} = (-2)(5) + (1)(2) + (4)(0) + (0)(3) = -8$$

For purposes of this example, assume  $\hat{u}$  represents the consumer profile and  $\hat{v}$  represents the advertisement profile, with their respective characteristics in the positions  $\{u_1, u_2, \dots, u_n\}$  and  $\{v_1, v_2, \dots, v_n\}$ . Essentially, to have a meaningful correlation factor, the characteristics for income, household size, etc. in the consumer profile must be in the same position as their counterparts in the advertisement profile, otherwise the calculation would multiply the consumer profile value for income with the advertisement profile value for household size (as opposed to comparing income with income). Therefore, the values for income must be paired in the  $u_1$  and  $v_1$  positions; values for family size paired

in the  $u_2$  and  $v_2$  positions, etc. This indexing is what Catalina referred to by use of “identical.” Exact identity of characteristics is not necessary, but if one profile contains a characteristic not found in the other profile, the latter should have a zero place holder in that position to allow meaningful calculation with respect to the other common characteristics.

The specification describes this indexing or organization:

- In a preferred embodiment, the consumer and ad characterization vectors “have a standardized format, in which each demographic characteristic and product preference is identified by an indexed position and thus represent coordinates in n-dimensional space, with each dimension representing a demographic or product preference characteristic.” Exhibit 1, col.9, lns.26-34
- “In an alternate embodiment the demographic and product preference parameters are grouped to form sets of paired scores in which elements in the consumer characterization vector are paired with corresponding elements of the ad characteristics vector.” Exhibit 1, col.12, lns.58-62.
- “When the consumer characterization vector and the ad characterization vector are not in a standardized format, a transformation can be performed to standardize the order of the demographic and product preferences, or the data can be decomposed into sets of basis vectors which indicate particular attributes such as age, income, or family size.” Exhibit 1, col.12, ln.66-col.13, ln.4; *see also*, Exhibit 1, col.8, lns.25-31.

For the foregoing reasons, Catalina respectfully requests that this Court construe the terms “correlation factor” and “scalar product” to require the computer to perform mathematical calculations of a numeric value representing the similarity between a vector representing the consumer profile and a vector representing an advertisement profile.

#### **C. DEFINING A PROBABILISTIC MEASURE**

Catalina proffers that “defining a probabilistic measure” means to distinctly specify the numeric probability as likelihood of demographic characteristics.

Expanse attempts to broaden the scope of “probabilistic measure” to include generalities (such as “more or less likely”), rather than specific numeric values of probability (such as 0.6 or 60%). Demonstrating another fundamental error in its claim construction technique, Expanse blindly relies on a broad dictionary definition of “measure,” without any reference to the specifications of the '129 and '348 patents to confirm that definition. *See Waner v. Ford Motor Co.*, 331 F.3d 851, 854 (Fed. Cir. 2003), *citing Texas Digital Sys., Inc. v. Telegenix, Inc.* 308 F.3d 1193, 1202-1203 (Fed. Cir. 2002). Expanse’s broad construction of “probabilistic measure” is contrary to (1) the explicit definition provided during the prosecution appeal of the '348 patent; (2) the distinction between logical and probabilistic heuristic rules (defining the probabilistic measure) in the patents; and (3) the repeated and consistent use of “measure” in the patents as referring to a numeric value.

In the prosecution appeal of the '348 patent, Expanse explicitly defined “probabilistic measure” as a numeric value in order to overcome a rejection of the '348 patent by the patent office:

As defined in the present application, the demographic profile includes a probabilistic measure that the customer fits in certain demographic classes (i.e., 80% chance the customer is married, 40% chance the customer has kids).

*See* Exhibit 16, CATA 001019 (emphasis added). Expanse cannot now avoid this specific definition by referencing broad and unsupported dictionary definitions. *See 3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (patentee’s definition in the intrinsic evidence controls over ordinary meaning or technical definitions).

Expanse also specifically distinguished between logical heuristic rules (which define generalities, such as more likely than not) and probabilistic heuristic rules (which define numeric values of probability, such as 60% or 0.6) in the '010 patent and '888 application. See Exhibit 17, EXP 010163; '010 patent, Exhibit 18, col. 2, Ins. 43-54 and col. 11, Ins. 4-34.<sup>4</sup> These differences are fully discussed in Catalina's Response Brief. Moreover, this distinction is also found in the '129 and '348 patents. In describing the heuristic rules depicted in Figure 7 of the '129 and '348 patents, the specifications state:

From the product characteristics, a probabilistic determination of household demographics can be generated. Similarly, the monthly quantity purchased can be used to estimate household size.

Exhibit 1, col.13, Ins.6-10 (emphasis added). The use of "similarly" indicates that this passage describes two different types of heuristic rules, like the logical and probabilistic rules in the '010 patent and '888 application. At his recent deposition, Dr. Eldering confirmed that these sentences refer to two different types of heuristic rules depicted in Figure 7. See Exhibit 43, Eldering (Expert) Deposition, July 5, 2004, p. 292, ln. 20 - p. 294, ln. 5.

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<sup>4</sup> The '129 and '348 patents claim priority to the '010 patent, and the '888 application is incorporated by reference in both the '129 and '348 patents. Therefore, both of these references are to be considered in construing the patents at issue. See *Intergraph Corp. v. Intel Corp.*, 89 Fed. Appx 218, 2225-6 (Fed. Cir. 2004); *Omega Eng'g v. Raytek Corp. et al.*, 334 F.3d 1314, 1333 (Fed. Cir. 2003); *Kimberly Clark Corp. v. Tyco Int'l*, 4 Fed. Appx. 946, 950 (Fed. Cir. 2001); *Abtox, Inc. v. Exitron Corp.*, 131 F.3d 1009, 1010 (Fed. Cir. 1997).

## PRODUCT DEMOGRAPHICS VECTOR

PRODUCT ID		
HOUSEHOLD INCOME	≤20K	0.2
HOUSEHOLD INCOME	20-40K	0.3
⋮		
HOUSEHOLD SIZE	0-2	0.1
HOUSEHOLD SIZE	2-4	0.3

## PRODUCT CHARACTERISTICS

PRODUCT ID: 2597251  
 BRAND: KELLOGG'S CORN FLAKES  
 SIZE: 32 OZ  
 PRICE: \$2.69

## PRODUCT DEMOGRAPHICS RULES

MONTHLY QUANTITY OF DIAPERS PURCHASED	ESTIMATED HOUSEHOLD SIZE	ESTIMATED # OF CHILDREN <5
>300	>5	≥3
150-300	3-5	2-3
50-150	3-4	1-2
1-50	3-4	1

## HEURISTIC RULES

## '129 PATENT-FIGURE 7

Dr. Eldering testifies that the first sentence, regarding “probabilistic determination,” refers to the upper left box in Figure 7, which plainly depicts numeric values for probability. *See* Exhibit 44, Eldering (Expert) Deposition, July 5, 2004, p.292, ln.20-p.294, ln.5. Dr. Eldering also testified that the second sentence, “[s]imilarly... to estimate,” refers to the center (bottom) box in Figure 7, which plainly depicts generalities relating diaper purchase to household size and number of children under the age of five. *Id.* Not only does this support Catalina’s construction of “probabilistic measure” based on the distinction between logical and probabilistic heuristic rules, but the direct association of the term “probabilistic” with the portion of Figure 7 depicting numeric values (and lack of such term with respect to portion of Figure 7 depicting logical generalities) also supports that construction.

Finally, Expanse disregards Catalina’s citation to the repeated and consistent use of the term “measure” in the '129 and '348 patents to refer to a numeric value. This is not

merely a case of using measure to describe numeric values for a preferred embodiment. On the contrary, “measure” is used throughout the specifications to describe only one thing – numbers – which is consistent with the meaning of “probabilistic measure” as understood by one of ordinary skill in the art. *See Novartis Pharm. Corp. v. Eon Labs Mfg., Inc.*, 363 F.3d 1306, 1309 (Fed. Cir. 2004) (selecting narrower dictionary definition consistent with description in specification and prosecution history).

#### **D. ASSOCIATED**

Catalina proffers that “associated” in the context of “heuristic rules associated with transactions” means the heuristic rules are product-specific, specifying the numeric probabilities that the purchaser of the product has particular demographic characteristics.

After admitting that Catalina provided the correct ordinary meaning of “associated,” Expanse argues that it is improper to construe this term relative to the surrounding claim terms “heuristic rules” and “transactions” to arrive at the construction that the heuristic rules are product-specific.<sup>5</sup> Expanse’s Response, p.12; Exhibit 15, claim 17 (“set of heuristic rules associated with transactions”). It is legally erroneous to construe claim terms in a vacuum. The surrounding claim terms are absolutely relevant to this construction. *See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1300 (Fed. Cir. 2003) (“While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.”).

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<sup>5</sup> The product-specificity of the heuristic rules in claims 1 and 8 of the '348 patent are also product-specific because they are included in the product-specific “product characterization information.” Expanse has not challenged Catalina’s construction of “product characterization information” as being product-specific.

Expanse further supports its argument with the ridiculous assertion that the Court cannot consider these terms together because Catalina's *Markman* Brief addresses the terms individually and Catalina "has not asked the Court to construe the entire element." Expanse's Response, p.12. Just because Catalina did not specifically recite the entire claim element in its brief does not negate the Court's responsibility for properly construing the disputed terms, including consideration of the surrounding claim terms.

#### **E. PROFILE, SET OF HEURISTIC RULES AND DEMOGRAPHIC CHARACTERISTICS**

The '129 and '348 patents both contain terms that limit the invention to embodiments that contain a plurality of some recited element of the alleged inventions. These terms include "profile," "set of heuristic rules" and "demographic characteristics." The ordinary and customary meaning of a plural noun is more than one, and a patent claim that recites a plural noun requires the presence of more than one of the recited elements. *See Superior Fireplace Co. v. The Majestic Products Co.*, 270 F. 3d 1358 (Fed. Cir. 2001) (holding invalid a certificate of correction that changed the claim term "rear walls" to "rear wall" because it impermissibly broadened the claim and was not clearly evident from the specification, drawings and prosecution history).

Expanse ignores the dictionary definitions of the words "profile" and "set," and the ordinary and customary meaning of plural nouns such as "heuristic rules" and "demographic characteristics," preferring instead to quibble about specific references to the patent specification. In fact, both the ordinary and customary meaning of the terms and their use in the patent specification demonstrate that the terms "profile," "set of heuristic rules" and "demographic characteristics" limit the invention to embodiments

that contain a plurality of the recited elements of the alleged inventions.

As we previously have demonstrated, the ordinary and customary meaning of the term “profile” is a set of data portraying or representing “features” or “characteristics” of something. (Catalina Opening Br. at p. 15-23). Consistent with its ordinary and customary meaning, the ‘129 and ‘348 patent specifications describe a consumer profile comprised of multiple data fields (for example, family size, age, income and product preferences). *See* ‘129 patent (Ex. 1), FIG. 2D; col. 4, lns. 39-44; FIGS. 2A and 2D; and col. 8, lns. 1-7. Each data field can be expressed as a vector, in which case the profile is comprised of a set of vectors. Compare ‘129 patent, col. 4, lns. 39-44 (“FIGURE[] ... 2D illustrate[s] ... a storage structure for consumer characterization vectors.”) with col. 8, lns. 1-2 (“FIGURE 2D represents a data structure for storing the consumer profile.”); FIG. 10 (illustrating a representation of a consumer profile as a set of basis vectors portraying family size, age and income, and an ad characterization vector). Thus, the patentee consistently used the term “profile” in the specification to a mean summary of data representing at least two distinctive features or characteristics. Likewise, prior art cited by the examiner also used “profile” to refer to multiple characteristics. *See*, Exhibit 16, CATA 0000962; Deaton patent, Exhibit 45 and the Williams patent, Exhibit 20, Figure 8.

Expanse focuses on a passage from column 8 of the specification that describes a consumer profile comprised of multiple data fields, including a consumer ID field, a deterministic demographic data field, a probabilistic demographic data field, and one or more product preference data fields, pointing out that that passage says only that the



profile “can be” comprised of those specific fields. ‘129 patent specification (Ex. 1), col. 8, lns. 1-5. However, nothing in this passage contradicts the ordinary and customary meaning of the term “profile,” or even remotely suggests that information about a single characteristic or feature of the consumer could constitute a “profile” of the consumer. On the contrary, the use of the words “can be” merely means that the profile does not necessarily have to include the specific types of information listed, and does not in any way mean that a profile could consist of data regarding a single characteristic.

Expanse also argues that an “alternate embodiment” described in column 8 of the ‘348 patent specification “clearly demonstrates that a profile can contain a single characteristic.” (Expanse Resp. Mem. at p. 15)<sup>6</sup>. Expanse’s argument is completely without merit. Although the ‘348 specification states that, in the alternate embodiment, a group of demographic characteristics can be expressed in a single vector, it also states that the consumer profile is comprised of a “set of vectors.” ‘348 specification (Ex. 15), col. 8, lns 56-65. This passage is in no way inconsistent with the ordinary and customary meaning of the term “profile.”

Expanse’s treatment of the term “demographic characteristics” is as mystifying as its arguments regarding the meaning of “profile.” Claims 1 and 17 of the ‘348 patent each recite a “set of heuristic rules defining a probabilistic measure of demographic characteristics.” Catalina has requested that the Court construe “demographic characteristics” to mean “more than one characteristic such as age, income, race, gender and household size and makeup, and interest area.” Catalina Proposed Order, ¶ 21.

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<sup>6</sup> The same passage can be found in the specifications for the ‘129 and ‘348 patents. See ‘129 specification

Expanse acknowledges that the ordinary and customary meaning of the claim language “implies that a purchaser may have more than one demographic characteristic, e.g., age and ethnicity” (Expanse Resp. Br. at p. 12), but opposes Catalina’s proposed construction. *Id.* Expanse explains that, in its view, “the claim does not require that a particular heuristic rule take into account more than one characteristic, only that different heuristic rules may be based on different demographic characteristics.” *Id.* Expanse’s concerns about the relationship between heuristic rules and “demographic characteristics, as recited in the claims, have nothing to do with Catalina’s proposed construction of the term “demographic characteristics,” and do not supply a reason for denying a construction of “demographic characteristics” that Expanse seems to admit is accurate. Accordingly, this Court should construe the term “demographic characteristics” to mean “more than one characteristic such as age, income, race, gender and household size and makeup, and interest areas.”

The final term that should be construed to mean a plurality of things is “set of heuristic rules.” Catalina has requested that this Court construe the word “set” in this claim term to mean “a group of at least two things of the same kind that belong together and are so used.” Expanse does not address this claim term in its response memorandum. Accordingly, this Court should adopt Catalina’s proposed construction, which is fully supported by the ordinary and customary meaning of the word “set,” the use of the plural noun “heuristic rules” and the use of the patent specifications’ illustrations of a “set of heuristic rules.”

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(Ex. 1), col. 9, lns. 39-48; ‘348 specification (Ex. 15), col. 8, lns. 56-65. Expanse refers to the ‘129 patent in

### III. CONCLUSION

It is telling that Expanse wholly failed to address many of the arguments advanced by Catalina in support of its claim construction. Rather than address the substance of these arguments, Expanse erroneously asserts that the ordinary meaning as understood by the jury is relevant to the construction of the claim terms, contrary to Federal Circuit precedent. Even then, Expanse repeatedly fails to support its purported “ordinary meaning” with citation to the intrinsic record or even a dictionary definition. It is clear that Expanse’s position on most, if not all, of the claim terms is in hopeless conflict with the intrinsic record and with the relevant ordinary meaning to one skilled in the art. Therefore, Catalina respectfully requests that its claim construction be adopted in whole.

Respectfully Submitted,

Dated: July 16, 2004

  
/EK1341  
Eric Kraeutler (Pa. Bar No. 32189)

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the text of its argument, but cites to column 8 of the ‘348 specification.

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**ATTORNEYS FOR DEFENDANT  
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**CERTIFICATE OF SERVICE**

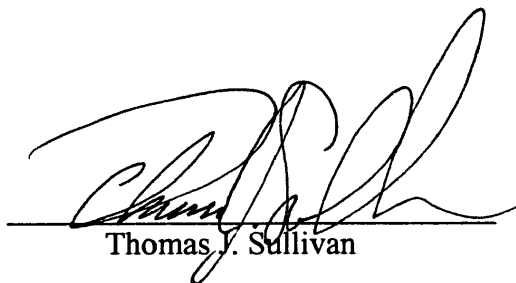
The undersigned certifies that a copy of the foregoing **DEFENDANT'S REPLY IN SUPPORT OF ITS CLAIM CONSTRUCTION POSITIONS** was served upon the attorneys of record of all parties to the above on this 16<sup>th</sup> day of July, 2004 as follows:

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